

EXHIBIT E4

SUPERIOR COURT OF THE STATE OF CALIFORNIA
FOR THE COUNTY OF LOS ANGELES - CENTRAL CIVIL WEST

Coordinated Proceeding)Coordinated Case
Special Title (Rule 3.550))No. JCCP4674
LAOSD ASBESTOS CASES)
_____)LASC Case No. BC646315
)
TINA HERFORD and)Coordination Trial
DOUGLAS HERFORD,)Judge:
)Hon. Steven J.
Plaintiffs,)Kleifield, Dept. 324
)
vs.)
)
AT&T CORP., a subsidiary)
of AT&T INC., et al.,)
)
Defendants.)
_____)

SUPERIOR COURT OF NEW JERSEY	
LAW DIVISION, MIDDLESEX COUNTY	
STEPHEN LANZO, III, and)
KENDRA LANZO,)
)
Plaintiffs,)
)DOCKET NO.
vs.)
)MID-L-7385-16AS
CYPRUS AMAX MINERALS)
COMPANY, et al.,)
)
Defendants.)
_____)

DEPOSITION OF WILLIAM E. LONGO, PhD

August 23, 2017

11555 Medlock Bridge Road, Suite 100
Johns Creek, Georgia
Debra R. Luther, RMR, CRR, CCR-B-881
Atlanta Reporters, Inc.
Georgia Certified Court Reporters
(866) 344-0459
www.atlanta-reporter.com

William E. Longo, Ph.D.

August 23, 2017

2 (Pages 2 to 5)

Page 2	Page 4
<p>1 APPEARANCES OF COUNSEL</p> <p>2 On behalf of the Plaintiffs</p> <p>3 Tina Herford and Douglas Herford:</p> <p>4 CHRIS PANATIER, Esq.</p> <p>5 Simon Greenstone Panatier Bartlett, PC</p> <p>6 3232 McKinney Avenue</p> <p>7 Suite 610</p> <p>8 Dallas, Texas 75204</p> <p>9 cpanatier@sbgblaw.com</p> <p>10 On behalf of the Plaintiffs</p> <p>11 Stephen Lanzo, III, and Kendra Lanzo:</p> <p>12 JOSEPH D. SATTERLEY, Esq.</p> <p>13 Kazan, McClain, Satterley & Greenwood</p> <p>14 55 Harrison Street</p> <p>15 Suite 400</p> <p>16 Oakland, California 94607</p> <p>17 jsatterley@satterleylaw.com</p> <p>18 On behalf of the Defendant</p> <p>19 Johnson & Johnson (Herford):</p> <p>20 ALEXANDER G. CALFO, Esq.</p> <p>21 King & Spalding, LLP</p> <p>22 633 West Fifth Street</p> <p>23 Suite 1700</p> <p>24 Los Angeles, California 90071</p> <p>25 acalfo@kslaw.com</p> <p>(Appearance by telephone)</p> <p>ADAM REINKE, Esq.</p> <p>King & Spalding, LLP</p> <p>1180 Peachtree Street, NE</p> <p>Atlanta, Georgia 30309-3521</p> <p>areinke@kslaw.com</p> <p>JULIA ROMANO, Esq.</p> <p>King & Spalding, LLP</p> <p>633 West Fifth Street</p> <p>Suite 1700</p> <p>Los Angeles, California 90071</p> <p>jromano@kslaw.com</p> <p>(Appearance by telephone)</p>	<p>1 INDEX TO EXAMINATIONS</p> <p>2</p> <p>3 Examination Page</p> <p>4</p> <p>5 Examination by Mr. Calfo 14</p> <p>6 Examination by Mr. Benoff 125</p> <p>7 Examination by Ms. Harirchi 226</p> <p>8 Examination by Mr. Panatier 230</p> <p>9</p> <p>10 - - -</p> <p>11</p> <p>12</p> <p>13</p> <p>14</p> <p>15</p> <p>16</p> <p>17</p> <p>18</p> <p>19 (A disk(s) containing original Exhibits 1</p> <p>20 through 18 will be attached to the original</p> <p>21 transcript, the originals having been returned</p> <p>22 to Dr. Longo. Exhibits 3, 7, and 8 were not</p> <p>23 produced to the court reporter by the time of</p> <p>24 production and not attached.)</p> <p>25</p>
Page 3	Page 5
<p>1 APPEARANCES OF COUNSEL (Continued)</p> <p>2 On behalf of the Defendant</p> <p>3 Imerys (Herford):</p> <p>4 TODD B. BENOFF, Esq.</p> <p>5 Alston & Bird, LLP</p> <p>6 333 South Hope Street</p> <p>7 Sixteenth Floor</p> <p>8 Los Angeles, California 90071</p> <p>9 todd.benoff@alston.com</p> <p>10 On behalf of the Defendant</p> <p>11 Shulton, Inc. (Herford):</p> <p>12 M. JAMES DEMPSEY, Esq.</p> <p>13 Cosmich, Simmons & Brown, PLLC</p> <p>14 34 Millbranch Road</p> <p>15 Suite 70</p> <p>16 Hattiesburg, Mississippi 39042</p> <p>17 jimmy@cs-law.com</p> <p>18 On behalf of the Defendants</p> <p>19 Calaveras Asbestos, Ltd. (Herford):</p> <p>20 N. NIKKI HARIRCHI, Esq.</p> <p>21 Foley & Mansfield, PLLP</p> <p>22 300 South Grand Avenue</p> <p>23 Suite 2800</p> <p>24 Los Angeles, California 90071</p> <p>25 nharirchi@foyleymansfield.com</p> <p>(Appearance by telephone)</p> <p>On behalf of the Defendant</p> <p>Revlon, Inc.; Yves San Laurent America,</p> <p>Bristol-Myers Squibb Company; and</p> <p>Elizabeth Arden, Inc. (Herford):</p> <p>EDWARD R. ULLOA, Esq.</p> <p>Hawkins, Parnell, Thackston & Young, LLP</p> <p>445 South Figueroa Street</p> <p>Suite 3200</p> <p>Los Angeles, California 90071-1651</p> <p>eulloa@hptylaw.com</p> <p>(Appearance by telephone)</p>	<p>1 INDEX TO EXHIBITS</p> <p>2</p> <p>3 Defendant's</p> <p>4 Exhibit Description Page</p> <p>5 1 Curriculum vitae 27</p> <p>6 2 Testimony list 27</p> <p>7 3 (Not marked) 28</p> <p>8 4 Five high-resolution photographs 45</p> <p>9 5 Talc Size Distribution of Johnson & 45</p> <p>10 Johnson and Valeant Shower to</p> <p>11 Shower Amphibole Positive Samples</p> <p>12 (Longo and Rigler, 8/21/2017)</p> <p>13 6 Project COC, chain of custody, 46</p> <p>14 purchase order, receipt,</p> <p>15 photographs</p> <p>16 7 (Not marked) 51</p> <p>17 8 (Not marked) 61</p> <p>18 9 Analysis of Johnson & Johnson Baby 62</p> <p>19 Powder and Valeant Shower to Shower</p> <p>20 Talc Products for Amphibole</p> <p>21 (Tremolite) Asbestos (Longo and</p> <p>22 Rigler, 8/2/2017)</p> <p>23 10 CDs: Johnson & Johnson Testing 67</p> <p>24 Binders 1 - 3</p> <p>25</p> <p>11 FDA 1973 - 1977 retesting of Lewin 69</p> <p>20 samples</p> <p>21 12 5/17/1977 Minutes of the CTFA Task 69</p> <p>22 Force on Round-Robin Testing of</p> <p>23 Consumer Talcum Products for</p> <p>24 Asbestiform Amphibole Minerals</p> <p>25</p> <p>13 Report of Results MVA 11730, 69</p> <p>24 Investigation of Italian Talc</p> <p>25 Samples for Asbestos (Compton,</p> <p>8/1/2017)</p>

Atlanta Reporters, Inc.

www.atlanta-reporters.com

866-344-0459

William E. Longo, Ph.D.

August 23, 2017

9 (Pages 30 to 33)

<p style="text-align: right;">Page 30</p> <p>1 where I actually do deposition or trial is on behalf 2 of plaintiffs. 3 Q. Okay. And just so we -- I'm sure you 4 testified to this in the past, but can you tell us 5 what percentage of your cases that you've testified 6 in through deposition or trial are on behalf of 7 plaintiffs? 8 A. What I've testified in the past, I have 9 not added it up, but I would say approximately 90 to 10 95 percent of the time when I'm testifying either in 11 deposition or trials is on behalf of plaintiffs. So 12 I don't have the exact number. 13 Q. And then if we look at Exhibit 2, your 14 list, which of those cases involved allegations 15 related to talc? 16 A. I don't know. 17 Q. Are there any? 18 A. I have testified in talc cases before, not 19 in cosmetic talc but primarily industrial talc, 20 typically involved in Vanderbilt. 21 Q. I didn't hear the last part. 22 A. Typically the Vanderbilt mines, or the 23 industrial talc mines. 24 Q. Okay. 25 A. But I don't know which ones those are.</p>	<p style="text-align: right;">Page 32</p> <p>1 generally? 2 A. That's what generally the thought process 3 is. Certainly if you look at Gouverneur talc, Nyal 4 has significant amounts of tremolite, anthophyllite, 5 getting away from the argument of asbestiform and 6 nonasbestiform, those can be routinely in the higher 7 percentages. But I guess it depends on the mine and 8 what's industrial versus what's not industrial. 9 And again, I may have to rethink that. 10 You have some industrial talc analysis for tremolite 11 and you have -- as compared to the cosmetic talc in 12 these documents, and the concentrations weren't that 13 much different for the tremolite and/or the 14 chrysotile found in at least the Vermont mines. 15 MR. CALFO: I'm going to move to strike 16 everything after the word and again, but that's 17 okay. 18 Q. (By Mr. Calfo) If you look at your 19 Exhibit 2, can you tell me which of the cases on 20 Exhibit 2 that you've testified in involve cosmetic 21 talcum powder products? 22 A. I think that we've already discussed that. 23 I don't recall ever testifying in a cosmetic talc 24 case other than a deposition I had when I was there 25 on behalf of a defendant, Scotts Turf Builder</p>
<p style="text-align: right;">Page 31</p> <p>1 Q. And you're a materials scientist? 2 A. Yes, sir. 3 Q. And as a materials scientist tell us what 4 your knowledge is in terms of the difference between 5 industrial talc and cosmetic talcum powder. 6 A. Typically what I've seen in the past, what 7 others have testified to, is the industrial talc 8 typically has a larger particle size, usually more 9 fibrous, and the prevailing thought at the time was 10 that it would have higher concentrations of 11 amphiboles. 12 That's not consistent with some of the J&J 13 documents where they have looked at both industrial 14 versus cosmetic in some of the later reports. But 15 that's usually what is the thought process, is that 16 you're not grinding it down to the size necessary for 17 the size distribution in industrial talc used in 18 things like joint compound, sometimes gaskets, 19 sometimes paint, et cetera, where the cosmetic talc 20 is specifically designed to be applied to the human 21 body. 22 Q. And so just generally, let me just get 23 this generally. Generally industrial talc has larger 24 particle size, it's more fibrous, and it has higher 25 concentrations of amphiboles; is that right,</p>	<p style="text-align: right;">Page 33</p> <p>1 fertilizer, and I was just only produced for our 2 analysis of that. And Moshe Maimon from Levy, 3 Phillips was there on behalf of the plaintiff, and 4 since he was crossing me and after he got my opinions 5 about Scotts Turf Builder, an individual -- and I 6 can't think of his name -- for Colgate, started 7 questioning me about cosmetic talc, even though I 8 wasn't there to testify about cosmetic talc. And 9 that's the only time -- 10 Q. And what was the name of that case? 11 A. I don't recall. 12 Q. If you look at your list of Exhibit 2, 13 would that refresh your memory? 14 MR. PANATIER: I bet you, Alex -- I kind 15 of know about this. I'll look at the report. 16 If it was before 2013 or after -- if it was 17 before 2013, it's not on here. I think it was 18 either Kenzig, Fishbain, or Diaz filed in either 19 New Jersey or New York. 20 MR. CALFO: Okay. 21 MR. PANATIER: And it was Morgan Tovey who 22 was doing the questioning. 23 Q. (By Mr. Calfo) So let me just ask you 24 this, sir. How many cases have you testified in 25 where plaintiffs alleged they developed mesothelioma</p>

<p style="text-align: right;">Page 34</p> <p>1 as a result of their exposure to cosmetic talc 2 powder? 3 A. Where actually I was hired as an expert in 4 that case? 5 Q. Yes. 6 A. These would be the first two. Well -- 7 both -- yeah, these would be the first two. 8 Q. And is Herford, the one we're here for 9 today, is that the first case you've ever testified 10 against Johnson & Johnson with respect to cosmetic 11 talc? 12 MR. SATTERLEY: Object to the form of the 13 question. 14 THE WITNESS: And just because I'm picky, 15 I don't testify for or against anybody. I just 16 provide the opinions of what I find and based 17 on -- 18 Q. (By Mr. Calfo) Let me rephrase it, then, 19 so you're comfortable with it. 20 A. Hold on -- on my background, training, and 21 analysis. And as far as I know, this would be the 22 first time that Johnson & Johnson is going to be 23 asking me questions about my work. 24 Q. Okay. Do you know who other defendants 25 are in the Herford case other than Johnson & Johnson?</p>	<p style="text-align: right;">Page 36</p> <p>1 I can't talk about them. 2 But this would be the first deposition 3 specifically involving a matrix of talc looking for 4 and determining if there's any trace levels of 5 amphiboles -- detectable trace levels of amphiboles 6 in the samples we looked at versus other types of 7 samples where we have looked at different matrices 8 where we are determining if there's trace amounts of 9 amphiboles present. 10 Q. And I know you don't want to talk about 11 your other matter, but when did you test the talcum 12 powder for that other product unrelated to Johnson & 13 Johnson? 14 A. I think there's been a couple, but it's 15 been within the last six months or seven months or 16 so. 17 Q. Have you had your deposition taken in 18 either of those instances? 19 A. No, sir. If I did, I could talk about it. 20 Q. Can you tell us who the plaintiff lawyers 21 were? 22 A. I prefer not to because I'm not an 23 attorney and I don't know what opens the door or not 24 opens the door. It's certainly nothing that I'm 25 relying on in this matter or that any results of</p>
<p style="text-align: right;">Page 35</p> <p>1 A. I do not. 2 Q. And let me just be clear. Is this 3 August 2nd, 2017, report that you prepared, which I 4 received two days ago, was that the first time you 5 tested a cosmetic talcum powder product for what 6 might be a potential asbestos contamination? 7 A. This would be the first time that we 8 looked for -- to determine trace amounts of amphibole 9 tremolite in a cosmetic talc versus the hundred times 10 that we have looked for trace amounts of amphibole in 11 other products, primarily the source being the 12 chrysotile in the products. 13 So this type of analysis is not new to us. 14 It's just a change or difference in the matrix 15 material that we're looking in. 16 Q. I understand. But the bottom line is this 17 was the first time you tested a cosmetic talcum 18 powder product for potential asbestos contamination; 19 right? 20 A. You know, I can't say that without just 21 thinking we have looked at another type of cosmetic 22 talc, it's my understanding, that's not Johnson & 23 Johnson. We've issued a report. But I'm not here 24 for that deposition, and my client or clients on a 25 couple of those are not here for their interests, so</p>	<p style="text-align: right;">Page 37</p> <p>1 those studies affects any of my opinions in this 2 matter. And I prefer to keep it confidential since 3 they're not here, I don't know if they want their 4 names spoken or not about it, so I just can't talk 5 about it. But I don't want you to think that this is 6 the only time within the last year that we have 7 analyzed talc samples. 8 MR. PANATIER: And just for the record, 9 I'll just place an objection that the question 10 violates the attorney work product privilege 11 because as far as I know, any of that work that 12 has been done has been done on a consulting 13 expert basis. 14 Q. (By Mr. Calfo) Well, let me move on. I 15 just want to -- let's keep moving, then. 16 Have you ever tested a cosmetic talcum 17 powder product for potential asbestos contamination 18 outside of litigation? 19 A. I don't believe so. 20 Q. Okay. Your report for this case, it's 21 entitled Analysis of Johnson & Johnson Baby Powder 22 and Valeant Shower to Shower Talc Products for 23 Amphibole (Tremolite) Asbestos; is that right? 24 A. That is correct. 25 Q. And it's a 25-page report with</p>

William E. Longo, Ph.D.

August 23, 2017

11 (Pages 38 to 41)

<p style="text-align: right;">Page 38</p> <p>1 attachments, which I received on Monday. You have</p> <p>2 attachments to your report; right?</p> <p>3 A. Yes, sir.</p> <p>4 Q. Okay. And when I looked at your report on</p> <p>5 Monday, I noted there were 679 pages in total, if you</p> <p>6 include the attachments. So you have a 25-page</p> <p>7 report with attachments that total about 679 pages;</p> <p>8 would that be fair, sir?</p> <p>9 A. That's fair.</p> <p>10 Q. Now, here's my confusion, because I</p> <p>11 understand there are new documents that I don't have.</p> <p>12 Other than the 25-page report and the 679 pages total</p> <p>13 that we've received, what else do you have that you</p> <p>14 brought with you today?</p> <p>15 A. I brought better quality photographs of</p> <p>16 each of the specimen container samples that show top,</p> <p>17 bottom -- six sides that are of higher quality than</p> <p>18 the one page in the book.</p> <p>19 And also I brought with me today a</p> <p>20 particle size analysis that was run on our scanning</p> <p>21 electron microscope to compare the size distributions</p> <p>22 of the talc particles as well as any fibrous</p> <p>23 particles in there as compared to what I would call a</p> <p>24 control, which is essentially a current version of</p> <p>25 Johnson's Baby Powder that was bought at a local</p>	<p style="text-align: right;">Page 40</p> <p>1 talk about this off the record.</p> <p>2 MR. PANATIER: Alex, this is Chris. To be</p> <p>3 clear, in Herford we also uploaded for you all</p> <p>4 of the Johnson & Johnson documents that we gave</p> <p>5 to Dr. Longo. So you have that too.</p> <p>6 MR. CALFO: Fair enough. Fair enough.</p> <p>7 And I've always had those; right?</p> <p>8 MR. PANATIER: Right, of course.</p> <p>9 Q. (By Mr. Calfo) Okay. So I don't have the</p> <p>10 quality photos that you have brought with you today,</p> <p>11 sir, but just tell me generally what are they and how</p> <p>12 do they bear on your opinions that you're going to</p> <p>13 render in the Herford case?</p> <p>14 A. They're a documentation of the containers</p> <p>15 of talcum powder that we analyzed that shows top,</p> <p>16 bottom, and all four sides for each of the 30</p> <p>17 samples. And other than saying this is what we</p> <p>18 analyzed and this is the container as received, it</p> <p>19 doesn't really have any other impact on my testimony.</p> <p>20 MR. PANATIER: And just to be clear,</p> <p>21 because I think he asked for all the photos,</p> <p>22 there's some of the fiber photos as well that</p> <p>23 are high-res photos.</p> <p>24 THE WITNESS: Oh, correct. A couple of</p> <p>25 the samples we took -- because there was visible</p>
<p style="text-align: right;">Page 39</p> <p>1 store here so that I could see how the size particles</p> <p>2 compare from sample to sample to sample to sample as</p> <p>3 well as what Johnson & Johnson is selling today --</p> <p>4 well, not today but within the last three or four</p> <p>5 months.</p> <p>6 MR. SATTERLEY: And let me just -- the</p> <p>7 Lanzo file and folders and binders and things</p> <p>8 are here as well; he brought those as well.</p> <p>9 MR. CALFO: Okay. Like I said, I just</p> <p>10 don't know anything about Lanzo, so I'm sorry.</p> <p>11 Thanks for putting it on the record.</p> <p>12 MR. SATTERLEY: It was produced to</p> <p>13 Johnson & Johnson last week, so I'm sorry that</p> <p>14 your client didn't share it with you. But if</p> <p>15 you got this information on Monday in the</p> <p>16 California case, I assume Johnson & Johnson</p> <p>17 lawyers in Lanzo didn't share it with you on</p> <p>18 Friday.</p> <p>19 MR. CALFO: The only thing I got is -- is</p> <p>20 this Mr. Satterley?</p> <p>21 MR. SATTERLEY: It is.</p> <p>22 MR. CALFO: All I received on Monday was a</p> <p>23 25-page report with 679 pages. That's all I</p> <p>24 got. And I haven't spoken with anyone because I</p> <p>25 thought that was all we were doing. So we can</p>	<p style="text-align: right;">Page 41</p> <p>1 amphiboles in the SEM, we took some high</p> <p>2 resolution just to show the structure of</p> <p>3 actually at the high resolution because of this</p> <p>4 instrument, they're bundles versus just a fiber,</p> <p>5 which that's what it would look like mostly on</p> <p>6 TEM, just some representative fibers from a</p> <p>7 couple of the positive samples.</p> <p>8 Q. (By Mr. Calfo) All right. So bottom</p> <p>9 line, what did the photos show in supporting your</p> <p>10 opinions in this case?</p> <p>11 A. Well, the few fibers --</p> <p>12 Q. Because I haven't seen them.</p> <p>13 A. The few amphibole fibers that we</p> <p>14 documented are consistent with what we found in the</p> <p>15 transmission electron microscope as well as shows</p> <p>16 more of the surface features of these fibers where</p> <p>17 you can -- what look as a fiber showing bundles, and</p> <p>18 bundles by definition are asbestiform, because you</p> <p>19 cannot fracture a blocky material and get numerous</p> <p>20 fibers stacked on top of each other, and it just</p> <p>21 shows some of the asbestiform tremolite fibers that</p> <p>22 were found in a couple of those samples.</p> <p>23 Q. How many photos do you have, sir, that you</p> <p>24 brought with you today?</p> <p>25 A. I have five.</p>

William E. Longo, Ph.D.

August 23, 2017

28 (Pages 106 to 109)

<p style="text-align: right;">Page 106</p> <p>1 A. No, sir. It was a different manufacturer. 2 However, the results are consistent with our results 3 and with others. I wouldn't expect the J&J to behave 4 any differently with a similar cosmetic type talc 5 with contamination or trace levels of amphiboles as 6 was found in the samples they tested. 7 Q. Can you cite for me any peer-reviewed 8 epidemiology study that concludes that exposure to 9 nonasbestiform amphibole minerals increases a 10 person's risk of developing cancer? 11 A. I'm not aware of any epi studies in which 12 they exposed humans just to nonasbestiform, because 13 you typically will get some asbestiform along with 14 the nonasbestiform. I don't know how much was 15 published of miners. And I'm not an epidemiologist, 16 so that's not an area I testify about. 17 And I don't testify about the hazards of 18 asbestos exposure, so I'm not here to say that any of 19 these results one way or the other are hazardous or 20 nonhazardous. 21 I'm just saying if you look at the data, 22 you look at all the testing, you look at our testing, 23 you look at others' testing, that there is an 24 exposure level for the use of these cosmetic talcs 25 that have amphibole contamination. Is that exposure</p>	<p style="text-align: right;">Page 108</p> <p>1 Q. Do you agree that tremolite can exist as 2 nonasbestos? 3 A. I would agree that the tremolite can be 4 nonasbestiform so -- 5 Q. In other words there's -- 6 MR. SATTERLEY: He's not -- 7 MR. PANATIER: Hold on. 8 THE WITNESS: So I can't agree that any 9 mine or any area that has, quote, 10 nonasbestiform, depending on who defines it, 11 there's not going to be asbestiform, according 12 to who defines it. 13 You can look at some individuals' 14 definition of asbestiform which essentially 15 would eliminate all the exposures from Libby, 16 Montana. Now, I'm not a medical doctor, but I 17 don't think there's much disagreement that those 18 tremolite, richterite, winchite exposures have 19 been killing people in Libby, Montana, for a lot 20 of years. But they may not meet the definition 21 of some folks's description of what asbestiform 22 is and nonasbestiform. 23 MR. CALFO: I'm going to move to strike to 24 the extent it's nonresponsive. 25 Q. (By Mr. Calfo) Let me ask you this. Do</p>
<p style="text-align: right;">Page 107</p> <p>1 level harmful and causes cancer or not? That's not 2 my area. Others can argue about that. 3 Q. All right. Because you mentioned 4 significant exposure. I didn't know what you meant 5 by that. But that's not what you're going to be 6 talking about; right? 7 A. Well, when I say significant exposure, 8 it's over background. And background levels for 9 tremolite anthophyllite are zero. So any detection 10 of airborne -- in my opinion, any detection of any 11 concentration of airborne tremolite anthophyllite, 12 unless you're living in Libby, Montana, when they're 13 working that mine, is going to be above background, 14 and that would be significant in my definition. 15 Q. What in layman's term is tremolite? 16 A. In layman's term? 17 Q. Yes. 18 A. It is an asbestos -- a regulated asbestos 19 fiber so that the exposure to tremolite-actinolite, 20 the tremolite series, is one of the types of 21 regulated asbestos fibers that OSHA, EPA, are 22 concerned about. 23 I don't know what a layman's term really 24 means. It's an asbestos -- regulated asbestos 25 mineral.</p>	<p style="text-align: right;">Page 109</p> <p>1 you agree there's both asbestiform tremolite and also 2 nonasbestiform tremolite? 3 A. I will agree. 4 Q. And do you agree that nonasbestiform 5 tremolite is common? 6 A. Again, what do you mean by common? 7 Q. How about the word ubiquitous. Wouldn't 8 you agree that nonasbestiform tremolite is 9 ubiquitous? 10 MR. PANATIER: I'll object to form. 11 THE WITNESS: Well, that tells me that you 12 can go out anywhere and find nonasbestiform 13 tremolite in any sample. I don't know if you 14 can do that. 15 I will agree with you that tremolite 16 contamination, you can find both asbestiform and 17 nonasbestiform, cleavage fragments, true 18 cleavage fragments, and typically -- that don't 19 meet the definition of a regulated fiber. 20 Certainly would agree with that. 21 Q. (By Mr. Calfo) So let me ask it very 22 easily. True or false: nonasbestiform tremolite is 23 ubiquitous? 24 MR. PANATIER: Same objection. 25 THE WITNESS: I don't know how you</p>

William E. Longo, Ph.D.

August 23, 2017

29 (Pages 110 to 113)

<p style="text-align: right;">Page 110</p> <p>1 define --</p> <p>2 Q. (By Mr. Calfo) True or false?</p> <p>3 A. It is true if it is in an area that has</p> <p>4 tremolite contamination. That is false if you're</p> <p>5 looking at ubiquitous as that's everywhere.</p> <p>6 Q. True or false: nonasbestiform tremolite in</p> <p>7 the world, there's more of it than asbestiform</p> <p>8 tremolite?</p> <p>9 MR. PANATIER: Same objection.</p> <p>10 THE WITNESS: That, I can't answer true or</p> <p>11 false because I don't have that information to</p> <p>12 validate that.</p> <p>13 Q. (By Mr. Calfo) In your report you mention</p> <p>14 tremolite. What did you do to confirm that what you</p> <p>15 were seeing in your analysis was tremolite?</p> <p>16 A. It had at least a 5:1 aspect ratio, it had</p> <p>17 the chemistry by energy dispersive EDXA, and it also</p> <p>18 had the typical amphibole diffraction for the</p> <p>19 intercrystalline spacing of somewhere in the 5.2 to</p> <p>20 5.3, had the amphibole diffraction pattern, and</p> <p>21 therefore it was called either tremolite, either</p> <p>22 winchite, either richterite, I think we found</p> <p>23 actinolite in one sample.</p> <p>24 So we confirmed that as specified by the</p> <p>25 Environmental Protection Agency in their TEM</p>	<p style="text-align: right;">Page 112</p> <p>1 and the EPA believes is appropriate to count for</p> <p>2 asbestos.</p> <p>3 At the high magnifications, if it's a</p> <p>4 single fiber, at least somebody who is knowledgeable,</p> <p>5 that you cannot tell exactly if it's asbestiform or</p> <p>6 nonasbestiform.</p> <p>7 However, where you have a bundle of</p> <p>8 tremolite, where you have more than two or more</p> <p>9 parallel fibers that are touching, typically it's</p> <p>10 more than that, that is an asbestiform material,</p> <p>11 because you cannot have cleavage fragments that are</p> <p>12 breaking from rock and then stack up precisely in</p> <p>13 long fibers on top of each other. That doesn't</p> <p>14 happen.</p> <p>15 Q. Is there anything else you can tell us</p> <p>16 about what you did to determine whether the tremolite</p> <p>17 you were seeing is asbestiform versus nonasbestiform?</p> <p>18 A. I didn't call anything asbestiform or</p> <p>19 nonasbestiform, but I've just given you, if asked,</p> <p>20 that would be what I would state, by looking at the</p> <p>21 photographs and looking is it single fiber versus a</p> <p>22 bundle.</p> <p>23 I would be hesitant to call it asbestiform</p> <p>24 or nonasbestiform if it meets the definition of both</p> <p>25 the Environmental Protection Agency and/or OSHA as</p>
<p style="text-align: right;">Page 111</p> <p>1 analysis, as specified in OSHA 7402 analysis, as</p> <p>2 specified in some of the ISO protocols, so we</p> <p>3 confirmed it as specified by government regulations</p> <p>4 on what to call tremolite asbestos versus something</p> <p>5 else.</p> <p>6 Q. Okay. So is there anything else that you</p> <p>7 did to rule out that what you're seeing is tremolite</p> <p>8 as opposed to another mineral?</p> <p>9 A. Well, other than that it was fibrous, it</p> <p>10 had the appropriate diffraction pattern, it had the</p> <p>11 spot-on microchemistry of a fiber, no.</p> <p>12 Q. What did you do to determine whether the</p> <p>13 tremolite you claim you have seen is asbestiform</p> <p>14 versus nonasbestiform?</p> <p>15 A. Well, that's a good question. At the</p> <p>16 level of TEM, if you have that it meets the</p> <p>17 definition, at least by EPA, that it has a 5:1 aspect</p> <p>18 ratio with parallel sides and it's a single fiber,</p> <p>19 you cannot determine if it's asbestiform or</p> <p>20 nonasbestiform.</p> <p>21 What you can say is that it meets the</p> <p>22 federal regulation or definition by the Environmental</p> <p>23 Protection Agency or it is a single fiber that's</p> <p>24 greater than 5 micrometers and the width of it is</p> <p>25 greater than .2, it meets the definition of what OSHA</p>	<p style="text-align: right;">Page 113</p> <p>1 what's defined as a fiber that they regulate.</p> <p>2 Q. Okay. So let me -- I'm just trying to</p> <p>3 figure out where I'm at with this.</p> <p>4 So you went to the level of the TEM and</p> <p>5 you looked at photos and you determined that there's</p> <p>6 a single fiber versus bundle. Is there anything</p> <p>7 else -- and it's not what you know. I just want to</p> <p>8 know what else you did.</p> <p>9 MR. PANATIER: I'll just object to asked</p> <p>10 and answered.</p> <p>11 THE WITNESS: I mean, we've already gone</p> <p>12 over how we identify tremolite versus actinolite</p> <p>13 versus talc fibers. But for me to sit here and</p> <p>14 say this is an asbestiform and this is</p> <p>15 nonasbestiform, using a TEM, you can't say a</p> <p>16 single fiber one way or the other, but you can</p> <p>17 on bundles.</p> <p>18 Q. (By Mr. Calfo) Do you agree that</p> <p>19 nonasbestiform amphiboles have properties that are</p> <p>20 very similar to their asbestos counterparts?</p> <p>21 A. They all have the same chemistry; they all</p> <p>22 have the same diffraction patterns. The</p> <p>23 nonasbestiforms will be shards with nonparallel</p> <p>24 sides, typically. But the properties --</p> <p>25 analytically, they would look the same.</p>

William E. Longo, Ph.D.

August 23, 2017

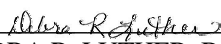
30 (Pages 114 to 117)

<p style="text-align: right;">Page 114</p> <p>1 Q. Well, you're familiar with the Yamate 2 method; right? 3 A. I am. 4 Q. And you agree the Yamate method is 5 reliable and authoritative, don't you? 6 A. For the time, absolutely. 7 Q. And do you know the three levels of 8 analysis under the Yamate method? 9 A. I do. George Yamate used to work for me. 10 Q. Okay. And did you use the Yamate method 11 when you did your analysis? 12 A. We used the AHERA sizing method and what 13 AHERA states to confirm. If you want to look at the 14 Yamate method on what is the appropriate method for 15 this analysis, it would be a Level II. Of course, 16 what you're getting at is the zone axis requirement 17 for amphiboles in Level III. 18 Because I have had George Yamate work for 19 me, George and I had discussions about the zone axis. 20 And at the time that the Level III was put out, the 21 EDXA or how we used to call the EDS detectors weren't 22 nearly as sensitive, there nearly wasn't enough 23 round-robins, they didn't have the controls and 24 standards, that's why he stated that. 25 But if George Yamate was alive today, he</p>	<p style="text-align: right;">Page 116</p> <p>1 Go ahead. 2 Q. (By Mr. Calfo) Okay. Well, let me ask 3 you. Did you set out to follow the Yamate method? 4 A. We set out to follow the AHERA counting 5 rules, the identification as specified in AHERA, and 6 that coincides with the Yamate -- or the EPA 7 Level II. 8 We did not set out to use the zone axis 9 diffraction requirement in the Level III for the 10 reasons I've already stated. 11 So when you say you did not follow the 12 Yamate method, the Yamate method and the AHERA method 13 are literally -- the Yamate method Level II is 14 literally identical to the AHERA method. 15 So we reference the AHERA method in the 16 report. We did not reference the Yamate Level II, I 17 don't believe, but they're literally the same. 18 Q. Can we agree that you did not, either way, 19 conduct a detailed zone axis SAED analysis? 20 A. That's correct; we did not. 21 Q. All right. Now, let me ask you a few 22 questions about your report. 23 At page 3 of 25, you state 17 samples were 24 found to contain detectable amounts of amphibole 25 asbestos --</p>
<p style="text-align: right;">Page 115</p> <p>1 could testify that with the equipment we have today, 2 we don't need zone axis diffraction to identify 3 tremolite, anthophyllite, actinolite, richterite, 4 winchite. And that's why it's not required for any 5 of the current methods both by EPA as well -- people 6 are more than welcome to do it, but it's not needed. 7 Q. That's great. Let me just ask you this, 8 very simple question. 9 Is it fair to say that your analysis did 10 not strictly follow the Yamate method? True or 11 false? 12 MR. PANATIER: I'm going to object to 13 form. 14 THE WITNESS: That's too broad for me to 15 say true or false. It certainly followed the 16 Level II. And, no, we did not do zone axis 17 diffraction patterns because of the reasons I've 18 already stated. 19 Q. (By Mr. Calfo) Okay. So let me just get 20 this. You did not specifically follow the Yamate 21 method, and you did not conduct a detailed zone axis 22 SAED analysis; right? 23 MR. PANATIER: I'm just going to object 24 that that assumes that he set out to follow 25 Yamate in the first place.</p>	<p style="text-align: right;">Page 117</p> <p>1 A. Correct. 2 Q. -- tremolite series and 3 ferro-anthophyllite. 4 Do you see that? 5 A. Yes. 6 Q. How do you define amphibole asbestos? 7 A. That it's any of the regulated amphiboles 8 that are asbestos as well as some of the 9 potassium-rich and sodium-rich tremolite fibers that 10 EPA is now calling winchite and richterite. 11 I know technically that's not a regulated 12 asbestos fiber from the winchite -- tremolite to 13 winchite and richterite, but I don't believe there's 14 any argument that that is problematic and of course 15 is of great concern to EPA and its Superfund site. 16 So I'm calling them amphibole asbestos, and these are 17 the amphiboles that I found. 18 Q. All right. And just in a nutshell, what 19 is it that you rely on for your definition of 20 amphibole asbestos? 21 A. Definition is that they're regulated and 22 they're called asbestos and that these would all have 23 been called asbestos by any of the protocols that we 24 use when we're dealing with what is asbestos and what 25 is not asbestos when we do analysis.</p>

William E. Longo, Ph.D.

August 23, 2017

61 (Pages 238 to 241)

<p style="text-align: right;">Page 238</p> <p>1 (Deposition concluded at 4:41 p.m.) 2 (Pursuant to Rule 30(e) of the Federal 3 Rules of Civil Procedure and/or OCGA 9-11-30(e), 4 signature of the witness has been reserved.) 5 (Original transcript sent to Mr. Calfo.) 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25</p>	<p style="text-align: right;">Page 240</p> <p>1 COURT REPORTER DISCLOSURE 2 3 Pursuant to Article 10.B. of the Rules and 4 Regulations of the Board of Court Reporting of the 5 Judicial Council of Georgia which states: "Each court 6 reporter shall tender a disclosure form at the time 7 of the taking of the deposition stating the 8 arrangements made for the reporting services of the 9 certified court reporter, by the certified court 10 reporter, the court reporter's employer, or the 11 referral source for the deposition, with any party to 12 the litigation, counsel to the parties or other 13 entity. Such form shall be attached to the 14 deposition transcript," I make the following 15 disclosure: 16 17 I am a Georgia Certified Court Reporter. I am 18 here as a representative of Atlanta Reporters, Inc. 19 Atlanta Reporters was contacted by King & Spalding, 20 LLP, to provide court reporting services for the 21 deposition. Atlanta Reporters will not be taking 22 this deposition under any contract that is prohibited 23 by OCGA 15-14-37(a) and (b). 24 25 Atlanta Reporters has no contract/agreement to provide reporting services with any party to the case, any counsel in the case, or any reporter or reporting agency from whom a referral might have been made to cover this deposition. Atlanta Reporters will charge its usual and customary rates to all parties in the case, and a financial discount will not be given to any party to this litigation.</p> <p style="text-align: right;">DEBRA R. LUTHER, B-881 Georgia Certified Court Reporter</p>
<p style="text-align: right;">Page 239</p> <p>1 CERTIFICATE 2 3 STATE OF GEORGIA: 4 COUNTY OF GWINNETT: 5 6 I hereby certify that the foregoing 7 transcript was taken down, as stated in the 8 caption, and the questions and answers thereto 9 were reduced to typewriting under my direction; 10 that the foregoing pages 1 through 238 represent 11 a true, complete, and correct transcript of the 12 evidence given upon said hearing, and I further 13 certify that I am not of kin or counsel to the 14 parties in the case; am not in the regular 15 employ of counsel for any of said parties; nor 16 am I in anywise interested in the result of said 17 case. 18 This, the 29th day of August 2017. 19 20  DEBRA R. LUTHER, B-881 Georgia Certified Court Reporter 21 22 23 24 25</p>	<p style="text-align: right;">Page 241</p> <p>1 DEPOSITION OF WILLIAM E. LONGO, PhD /DRL 2 I do hereby certify that I have read all 3 questions propounded to me and all answers given by 4 me on the 23rd day of August 2017, taken before 5 Debra R. Luther, and that: 6 7 1) There are no changes noted. 8 2) The following changes are noted: 9 Pursuant to Rule 30(e) of the Federal Rules of 10 Civil Procedure and/or the Official Code of Georgia 11 Annotated 9-11-30(e), both of which read in part: 12 Any changes in form or substance which you desire to 13 make shall be entered upon the deposition...with a 14 statement of the reasons given...for making them. 15 Accordingly, to assist you in effecting corrections, 16 please use the form below: 17 18 Page No. ____ Line No. ____ should read: ____ 19 20 Page No. ____ Line No. ____ should read: ____ 21 22 Page No. ____ Line No. ____ should read: ____ 23 24 Page No. ____ Line No. ____ should read: ____ 25 26 Page No. ____ Line No. ____ should read: ____ 27 28 Page No. ____ Line No. ____ should read: ____ 29 30 Page No. ____ Line No. ____ should read: ____ 31 32 Page No. ____ Line No. ____ should read: ____ 33 34 Page No. ____ Line No. ____ should read: ____ 35 36 Page No. ____ Line No. ____ should read: ____ 37 38 Page No. ____ Line No. ____ should read: ____ 39 40 Page No. ____ Line No. ____ should read: ____ 41 42 Page No. ____ Line No. ____ should read: ____ 43 44 Page No. ____ Line No. ____ should read: ____ 45 46 Page No. ____ Line No. ____ should read: ____ 47 48 Page No. ____ Line No. ____ should read: ____ 49 50 Page No. ____ Line No. ____ should read: ____ 51 52 Page No. ____ Line No. ____ should read: ____ 53 54 Page No. ____ Line No. ____ should read: ____ 55 56 Page No. ____ Line No. ____ should read: ____ 57 58 Page No. ____ Line No. ____ should read: ____ 59 60 Page No. ____ Line No. ____ should read: ____ 61 62 Page No. ____ Line No. ____ should read: ____ 63 64 Page No. ____ Line No. ____ should read: ____ 65 66 Page No. ____ Line No. ____ should read: ____ 67 68 Page No. ____ Line No. ____ should read: ____ 69 70 Page No. ____ Line No. ____ should read: ____ 71 72 Page No. ____ Line No. ____ should read: ____ 73 74 Page No. ____ Line No. ____ should read: ____ 75 76 Page No. ____ Line No. ____ should read: ____ 77 78 Page No. ____ Line No. ____ should read: ____ 79 80 Page No. ____ Line No. ____ should read: ____ 81 82 Page No. ____ Line No. ____ should read: ____ 83 84 Page No. ____ Line No. ____ should read: ____ 85 86 Page No. ____ Line No. ____ should read: ____ 87 88 Page No. ____ Line No. ____ should read: ____ 89 90 Page No. ____ Line No. ____ should read: ____ 91 92 Page No. ____ Line No. ____ should read: ____ 93 94 Page No. ____ Line No. ____ should read: ____ 95 96 Page No. ____ Line No. ____ should read: ____ 97 98 Page No. ____ Line No. ____ should read: ____ 99 100 Page No. ____ Line No. ____ should read: ____ 101 102 Page No. ____ Line No. ____ should read: ____ 103 104 Page No. ____ Line No. ____ should read: ____ 105 106 Page No. ____ Line No. ____ should read: ____ 107 108 Page No. ____ Line No. ____ should read: ____ 109 110 Page No. ____ Line No. ____ should read: ____ 111 112 Page No. ____ Line No. ____ should read: ____ 113 114 Page No. ____ Line No. ____ should read: ____ 115 116 Page No. ____ Line No. ____ should read: ____ 117 118 Page No. ____ Line No. ____ should read: ____ 119 120 Page No. ____ Line No. ____ should read: ____ 121 122 Page No. ____ Line No. ____ should read: ____ 123 124 Page No. ____ Line No. ____ should read: ____ 125 126 Page No. ____ Line No. ____ should read: ____ 127 128 Page No. ____ Line No. ____ should read: ____ 129 130 Page No. ____ Line No. ____ should read: ____ 131 132 Page No. ____ Line No. ____ should read: ____ 133 134 Page No. ____ Line No. ____ should read: ____ 135 136 Page No. ____ Line No. ____ should read: ____ 137 138 Page No. ____ Line No. ____ should read: ____ 139 140 Page No. ____ Line No. ____ should read: ____ 141 142 Page No. ____ Line No. ____ should read: ____ 143 144 Page No. ____ Line No. ____ should read: ____ 145 146 Page No. ____ Line No. ____ should read: ____ 147 148 Page No. ____ Line No. ____ should read: ____ 149 150 Page No. ____ Line No. ____ should read: ____ 151 152 Page No. ____ Line No. ____ should read: ____ 153 154 Page No. ____ Line No. ____ should read: ____ 155 156 Page No. ____ Line No. ____ should read: ____ 157 158 Page No. ____ Line No. ____ should read: ____ 159 160 Page No. ____ Line No. ____ should read: ____ 161 162 Page No. ____ Line No. ____ should read: ____ 163 164 Page No. ____ Line No. ____ should read: ____ 165 166 Page No. ____ Line No. ____ should read: ____ 167 168 Page No. ____ Line No. ____ should read: ____ 169 170 Page No. ____ Line No. ____ should read: ____ 171 172 Page No. ____ Line No. ____ should read: ____ 173 174 Page No. ____ Line No. ____ should read: ____ 175 176 Page No. ____ Line No. ____ should read: ____ 177 178 Page No. ____ Line No. ____ should read: ____ 179 180 Page No. ____ Line No. ____ should read: ____ 181 182 Page No. ____ Line No. ____ should read: ____ 183 184 Page No. ____ Line No. ____ should read: ____ 185 186 Page No. ____ Line No. ____ should read: ____ 187 188 Page No. ____ Line No. ____ should read: ____ 189 190 Page No. ____ Line No. ____ should read: ____ 191 192 Page No. ____ Line No. ____ should read: ____ 193 194 Page No. ____ Line No. ____ should read: ____ 195 196 Page No. ____ Line No. ____ should read: ____ 197 198 Page No. ____ Line No. ____ should read: ____ 199 200 Page No. ____ Line No. ____ should read: ____ 201 202 Page No. ____ Line No. ____ should read: ____ 203 204 Page No. ____ Line No. ____ should read: ____ 205 206 Page No. ____ Line No. ____ should read: ____ 207 208 Page No. ____ Line No. ____ should read: ____ 209 210 Page No. ____ Line No. ____ should read: ____ 211 212 Page No. ____ Line No. ____ should read: ____ 213 214 Page No. ____ Line No. ____ should read: ____ 215 216 Page No. ____ Line No. ____ should read: ____ 217 218 Page No. ____ Line No. ____ should read: ____ 219 220 Page No. ____ Line No. ____ should read: ____ 221 222 Page No. ____ Line No. ____ should read: ____ 223 224 Page No. ____ Line No. ____ should read: ____ 225 226 Page No. ____ Line No. ____ should read: ____ 227 228 Page No. ____ Line No. ____ should read: ____ 229 230 Page No. ____ Line No. ____ should read: ____ 231 232 Page No. ____ Line No. ____ should read: ____ 233 234 Page No. ____ Line No. ____ should read: ____ 235 236 Page No. ____ Line No. ____ should read: ____ 237 238 Page No. ____ Line No. ____ should read: ____ 239 240 Page No. ____ Line No. ____ should read: ____ 241 242 Page No. ____ Line No. ____ should read: ____ 243 244 Page No. ____ Line No. ____ should read: ____ 245 246 Page No. ____ Line No. ____ should read: ____ 247 248 Page No. ____ Line No. ____ should read: ____ 249 250 Page No. ____ Line No. ____ should read: ____ 251 252 Page No. ____ Line No. ____ should read: ____ 253 254 Page No. ____ Line No. ____ should read: ____ 255 256 Page No. ____ Line No. ____ should read: ____ 257 258 Page No. ____ Line No. ____ should read: ____ 259 260 Page No. ____ Line No. ____ should read: ____ 261 262 Page No. ____ Line No. ____ should read: ____ 263 264 Page No. ____ Line No. ____ should read: ____ 265 266 Page No. ____ Line No. ____ should read: ____ 267 268 Page No. ____ Line No. ____ should read: ____ 269 270 Page No. ____ Line No. ____ should read: ____ 271 272 Page No. ____ Line No. ____ should read: ____ 273 274 Page No. ____ Line No. ____ should read: ____ 275 276 Page No. ____ Line No. ____ should read: ____ 277 278 Page No. ____ Line No. ____ should read: ____ 279 280 Page No. ____ Line No. ____ should read: ____ 281 282 Page No. ____ Line No. ____ should read: ____ 283 284 Page No. ____ Line No. ____ should read: ____ 285 286 Page No. ____ Line No. ____ should read: ____ 287 288 Page No. ____ Line No. ____ should read: ____ 289 290 Page No. ____ Line No. ____ should read: ____ 291 292 Page No. ____ Line No. ____ should read: ____ 293 294 Page No. ____ Line No. ____ should read: ____ 295 296 Page No. ____ Line No. ____ should read: ____ 297 298 Page No. ____ Line No. ____ should read: ____ 299 300 Page No. ____ Line No. ____ should read: ____ 301 302 Page No. ____ Line No. ____ should read: ____ 303 304 Page No. ____ Line No. ____ should read: ____ 305 306 Page No. ____ Line No. ____ should read: ____ 307 308 Page No. ____ Line No. ____ should read: ____ 309 310 Page No. ____ Line No. ____ should read: ____ 311 312 Page No. ____ Line No. ____ should read: ____ 313 314 Page No. ____ Line No. ____ should read: ____ 315 316 Page No. ____ Line No. ____ should read: ____ 317 318 Page No. ____ Line No. ____ should read: ____ 319 320 Page No. ____ Line No. ____ should read: ____ 321 322 Page No. ____ Line No. ____ should read: ____ 323 324 Page No. ____ Line No. ____ should read: ____ 325 326 Page No. ____ Line No. ____ should read: ____ 327 328 Page No. ____ Line No. ____ should read: ____ 329 330 Page No. ____ Line No. ____ should read: ____ 331 332 Page No. ____ Line No. ____ should read: ____ 333 334 Page No. ____ Line No. ____ should read: ____ 335 336 Page No. ____ Line No. ____ should read: ____ 337 338 Page No. ____ Line No. ____ should read: ____ 339 340 Page No. ____ Line No. ____ should read: ____ 341 342 Page No. ____ Line No. ____ should read: ____ 343 344 Page No. ____ Line No. ____ should read: ____ 345 346 Page No. ____ Line No. ____ should read: ____ 347 348 Page No. ____ Line No. ____ should read: ____ 349 350 Page No. ____ Line No. ____ should read: ____ 351 352 Page No. ____ Line No. ____ should read: ____ 353 354 Page No. ____ Line No. ____ should read: ____ 355 356 Page No. ____ Line No. ____ should read: ____ 357 358 Page No. ____ Line No. ____ should read: ____ 359 360 Page No. ____ Line No. ____ should read: ____ 361 362 Page No. ____ Line No. ____ should read: ____ 363 364 Page No. ____ Line No. ____ should read: ____ 365 366 Page No. ____ Line No. ____ should read: ____ 367 368 Page No. ____ Line No. ____ should read: ____ 369 370 Page No. ____ Line No. ____ should read: ____ 371 372 Page No. ____ Line No. ____ should read: ____ 373 374 Page No. ____ Line No. ____ should read: ____ 375 376 Page No. ____ Line No. ____ should read: ____ 377 378 Page No. ____ Line No. ____ should read: ____ 379 380 Page No. ____ Line No. ____ should read: ____ 381 382 Page No. ____ Line No. ____ should read: ____ 383 384 Page No. ____ Line No. ____ should read: ____ 385 386 Page No. ____ Line No. ____ should read: ____ 387 388 Page No. ____ Line No. ____ should read: ____ 389 390 Page No. ____ Line No. ____ should read: ____ 391 392 Page No. ____ Line No. ____ should read: ____ 393 394 Page No. ____ Line No. ____ should read: ____ 395 396 Page No. ____ Line No. ____ should read: ____ 397 398 Page No. ____ Line No. ____ should read: ____ 399 400 Page No. ____ Line No. ____ should read: ____ 401 402 Page No. ____ Line No. ____ should read: ____ 403 404 Page No. ____ Line No. ____ should read: ____ 405 406 Page No. ____ Line No. ____ should read: ____ 407 408 Page No. ____ Line No. ____ should read: ____ 409 410 Page No. ____ Line No. ____ should read: ____ 411 412 Page No. ____ Line No. ____ should read: ____ 413 414 Page No. ____ Line No. ____ should read: ____ 415 416 Page No. ____ Line No. ____ should read: ____ 417 418 Page No. ____ Line No. ____ should read: ____ 419 420 Page No. ____ Line No. ____ should read: ____ 421 422 Page No. ____ Line No. ____ should read: ____ 423 424 Page No. ____ Line No. ____ should read: ____ 425 426 Page No. ____ Line No. ____ should read: ____ 427 428 Page No. ____ Line No. ____ should read: ____ 429 430 Page No. ____ Line No. ____ should read: ____ 431 432 Page No. ____ Line No. ____ should read: ____ 433 434 Page No. ____ Line No. ____ should read: ____ 435 436 Page No. ____ Line No. ____ should read: ____ 437 438 Page No. ____ Line No. ____ should read: ____ 439 440 Page No. ____ Line No. ____ should read: ____ 441 442 Page No. ____ Line No. ____ should read: ____ 443 444 Page No. ____ Line No. ____ should read: ____ 445 446 Page No. ____ Line No. ____ should read: ____ 447 448 Page No. ____ Line No. ____ should read: ____ 449 450 Page No. ____ Line No. ____ should read: ____ 451 452 Page No. ____ Line No. ____ should read: ____ 453 454 Page No. ____ Line No. ____ should read: ____ 455 456 Page No. ____ Line No. ____ should read: ____ 457 458 Page No. ____ Line No. ____ should read: ____ 459 460 Page No. ____ Line No. ____ should read: ____ 461 462 Page No. ____ Line No. ____ should read: ____ 463 464 Page No. ____ Line No. ____ should read: ____ 465 466 Page No. ____ Line No. ____ should read: ____ 467 468 Page No. ____ Line No. ____ should read: ____ 469 470 Page No. ____ Line No. ____ should read: ____ 471 472 Page No. ____ Line No. ____ should read: ____ 473 474 Page No. ____ Line No. ____ should read: ____ 475 476 Page No. ____ Line No. ____ should read: ____ 477 478 Page No. ____ Line No. ____ should read: ____ 479 480 Page No. ____ Line No. ____ should read: ____ 481 482 Page No. ____ Line No. ____ should read: ____ 483 484 Page No. ____ Line No. ____ should read: ____ 485 486 Page No. ____ Line No. ____ should read: ____ 487 488 Page No. ____ Line No. ____ should read: ____ 489 490 Page No. ____ Line No. ____ should read: ____ 491 492 Page No. ____ Line No. ____ should read: ____ 493 494 Page No. ____ Line No. ____ should read: ____ 495 496 Page No. ____ Line No. ____ should read: ____ 497 498 Page No. ____ Line No. ____ should read: ____ 499 500 Page No. ____ Line No. ____ should read: ____ 501 502 Page No. ____ Line No. ____ should read: ____ 503 504 Page No. ____ Line No. ____ should read: ____ 505 506 Page No. ____ Line No. ____ should read: ____ 507 508 Page No. ____ Line No. ____ should read: ____ 509 510 Page No. ____ Line No. ____ should read: ____ 511 512 Page No. ____ Line No. ____ should read: ____ 513 514 Page No. ____ Line No. ____ should read: ____ 515 516 Page No. ____ Line No. ____ should read: ____ 517 518 Page No. ____ Line No. ____ should read: ____ 519 520 Page No. ____ Line No. ____ should read: ____ 521 522 Page No. ____ Line No. ____ should read: ____ 523 524 Page No. ____ Line No. ____ should read: ____ 525 526 Page No. ____ Line No. ____ should read: ____ 527 528 Page No. ____ Line No. ____ should read: ____ 529 530 Page No. ____ Line No. ____ should read: ____ 531 532 Page No. ____ Line No. ____ should read: ____ 533 534 Page No. ____ Line No. ____ should read: ____ 535 536 Page No. ____ Line No. ____ should read: ____ 537 538 Page No. ____ Line No. ____ should read: ____ 539 540 Page No. ____ Line No. ____ should read: ____ 541 542 Page No. ____ Line No. ____ should read: ____ 543 544 Page No. ____ Line No. ____ should read: ____ 545 546 Page No. ____ Line No. ____ should read: ____ 547 548 Page No. ____ Line No. ____ should read: ____ 549 550 Page No. ____ Line No. ____ should read: ____ 551 552 Page No. ____ Line No. ____ should read: ____ 553 554 Page No. ____ Line No. ____ should read: ____ 555 556 Page No. ____ Line No. ____ should read: ____ 557 558 Page No. ____ Line No. ____ should read: ____ 559 560 Page No. ____ Line No. ____ should read: ____ 561 562 Page No. ____ Line No. ____ should read: ____ 563 564 Page No. ____ Line No. ____ should read: ____ 565 566 Page No. ____ Line No. ____ should read: ____ 567 568 Page No. ____ Line No. ____ should read: ____ 569 570 Page No. ____ Line No. ____ should read: ____ 571 572 Page No. ____ Line No. ____ should read: ____ 573 574 Page No. ____ Line No. ____ should read: ____ 575 576 Page No. ____ Line No. ____ should read: ____ 577 578 Page No. ____ Line No. ____ should read: ____ 579 580 Page No. ____ Line No. ____ should read: ____ 581 582 Page No. ____ Line No. ____ should read: ____ 583 584 Page No. ____ Line No. ____ should read: ____ 585 586 Page No. ____ Line No. ____ should read: ____ 587 588 Page No. ____ Line No. ____ should read: ____ 589 590 Page No. ____ Line No. ____ should read: ____ 591 592 Page No. ____ Line No. ____ should read: ____ 593 594 Page No. ____ Line No. ____ should read: ____ 595 596 Page No. ____ Line No. ____ should read: ____ 597 598 Page No. ____ Line No. ____ should read: ____ 599 600 Page No. ____ Line No. ____ should read: ____ 601 602 Page No. ____ Line No. ____ should read: ____ 603 604 Page No. ____ Line No. ____ should read: ____ 605 606 Page No. ____ Line No. ____ should read: ____ 607 608 Page No. ____ Line No. ____ should read: ____ 609 610 Page No. ____ Line No. ____ should read: ____ 611 612 Page No. ____ Line No. ____ should read: ____ 613 614 Page No. ____ Line No. ____ should read: ____ 615 616 Page No. ____ Line No. ____ should read: ____ 617 618 Page No. ____ Line No. ____ should read: ____ 619 620 Page No. ____ Line No. ____ should read: ____ 621 622 Page No. ____ Line No. ____ should read: ____ 623 624 Page No. ____ Line No. ____ should read: ____ 625 626 Page No. ____ Line No. ____ should read: ____ 627 628 Page No. ____ Line No. ____ should read: ____ 629 630 Page No. ____ Line No. ____ should read: ____ 631 632 Page No. ____ Line No. ____ should read: ____ 633 634 Page No. ____ Line No. ____ should read: ____ 635 636 Page No. ____ Line No. ____ should read: ____ 637 638 Page No. ____ Line No. ____ should read: ____ 639 640 Page No. ____ Line No. ____ should read: ____ 641 642 Page No. ____ Line No. ____ should read: ____ 643 644 Page No. ____ Line No. ____ should read: ____ 645 646 Page No. ____ Line No. ____ should read: ____ 647 648 Page No. ____ Line No. ____ should read: ____ 649 650 Page No. ____ Line No. ____ should read: ____ 651 652 Page No. ____ Line No. ____ should read: ____ 653 654 Page No. ____ Line No. ____ should read: ____ 655 656 Page No. ____ Line No. ____ should read: ____ 657 658 Page No. ____ Line No. ____ should read: ____ 659 660 Page No. ____ Line No. ____ should read: ____ 661 662 Page No. ____ Line No. ____ should read: ____ 663 664 Page No. ____ Line No. ____ should read: ____ 665 666 Page No. ____ Line No. ____ should read: ____ 667 668 Page No. ____ Line No. ____ should read: ____ 669 670 Page No. ____ Line No. ____ should read: ____ 671 672 Page No. ____ Line No. ____ should read: ____ 673 674 Page No. ____ Line No. ____ should read: ____ 675 676 Page No. ____ Line No. ____ should read: ____ 677 678 Page No. ____ Line No. ____ should read: ____ 679 680 Page No. ____ Line No. ____ should read: ____ 681 682 Page No. ____ Line No. ____ should read: ____ 683 684 Page No. ____ Line No. ____ should read: ____ 685 686 Page No. ____ Line No. ____ should read: ____ 687 688 Page No. ____ Line No. ____ should read: ____ 689 690 Page No. ____ Line No. ____ should read: ____ 691 692 Page No. ____ Line No. ____ should read: ____ 693 694 Page No. ____ Line No. ____ should read: ____ 695 696 Page No. ____ Line No. ____ should read: ____ 697 698 Page No. ____ Line No. ____ should read: ____ 699 700 Page No. ____ Line No. ____ should read: ____ 701 702 Page No. ____ Line No. ____ should read: ____ 703 704 Page No. ____ Line No. ____ should read: ____ 705 706 Page No. ____ Line No. ____ should read: ____ 707 708 Page No. ____ Line No. ____ should read: ____ 709 710 Page No. ____ Line No. ____ should read: ____ 711 712 Page No. ____ Line No. ____ should read: ____ 713 714 Page No. ____ Line No. ____ should read: ____ 715 716 Page No. ____ Line No. ____ should read: ____ 717 718 Page No. ____ Line No. ____ should read: ____ 719 720 Page No. ____ Line No. ____ should read: ____ 721 722 Page No. ____ Line No. ____ should read: ____ 723 724 Page No. ____ Line No. ____ should read: ____ 725 726 Page No. ____ Line No. ____ should read: ____ 727 728 Page No. ____ Line No. ____ should read: ____ 729 730 Page No. ____ Line No. ____ should read: ____ 731 732 Page No. ____ Line No. ____ should read: ____ 733 734 Page No. ____ Line No. ____ should read: ____ 735 736 Page No. ____ Line No. ____ should read: ____ 737 738 Page No. ____ Line No. ____ should read: ____ 739 740 Page No. ____ Line No. ____ should read: ____ 741 742 Page No. ____ Line No. ____ should read: ____ 743 744 Page No. ____ Line No. ____ should read: ____ 745 746 Page No. ____ Line No. ____ should read: ____ 747 748 Page No. ____ Line No. ____ should read: ____ 749 750 Page No. ____ Line No. ____ should read: ____ 751 752 Page No. ____ Line No. ____ should read: ____ 753 754 Page No. ____ Line No. ____ should read: ____ 755 756 Page No. ____ Line No. ____ should read: ____ 757 758 Page No. ____ Line No. ____ should read: ____ 759 760 Page No. ____ Line No. ____ should read: ____ 761 762 Page No. ____ Line No. ____ should read: ____ 763 764 Page No. ____ Line No. ____ should read: ____ 765 766 Page No. ____ Line No. ____ should read: ____ 767 768 Page No. ____ Line No. ____ should read: ____ 769 770 Page No. ____ Line No. ____ should read: ____ 771 772 Page No. ____ Line No. ____ should read: ____ 773 774 Page No. ____ Line No. ____ should read: ____ 775 776 Page No. ____ Line No. ____ should read: ____ 777 778 Page No. ____ Line No. ____ should read: ____ 779 780 Page No. ____ Line No. ____ should read: ____ 781 782 Page No. ____ Line No. ____ should read: ____ 783 784 Page No. ____ Line No. ____ should read: ____ 785 786 Page No. ____ Line No. ____ should read: ____ 787 788 Page No. ____ Line No. ____ should read: ____ 789 790 Page No. ____ Line No. ____ should read: ____ 791 792 Page No. ____ Line No. ____ should read: ____ 793 794 Page No. ____ Line No. ____ should read: ____ 795 796 Page No. ____ Line No. ____ should read: ____ 797 798 Page No. ____ Line No. ____ should read: ____ 799 800 Page No. ____ Line No. ____ should read: ____ 801 802 Page No. ____ Line No. ____ should read: ____ 803 804 Page No. ____ Line No. ____ should read: ____ 805 806 Page No. ____ Line No. ____ should read: ____ 807 808 Page No. ____ Line No. ____ should read: ____ 809 810 Page No. ____ Line No. ____ should read: ____ 811 812 Page No. ____ Line No. ____ should read: ____ 813 814 Page No. ____ Line No. ____ should read: ____ 815 816 Page No. ____ Line No. ____ should read: ____ 817 818 Page No. ____ Line No. ____ should read: ____ 819 820 Page No. ____ Line No. ____ should read: ____ 821 822 Page No. ____ Line No. ____ should read: ____ 823 824 Page No. ____ Line No. ____ should read: ____ 825 826 Page No. ____ Line No. ____ should read: ____ 827 828 Page No. ____ Line No. ____ should read: ____ 829 830 Page No. ____ Line No. ____ should read: ____ 831 832 Page No. ____ Line No. ____ should read: ____ 833 834 Page No. ____ Line No. ____ should read: ____ 835 836 Page No. ____ Line No. ____ should read: ____ 837 838 Page No. ____ Line No. ____ should read: ____ 839 840 Page No. ____ Line No. ____ should read: ____ 841 842 Page No. ____ Line No. ____ should read: ____ 843 844 Page No. ____ Line No. ____ should read: ____ 845 846 Page No. ____ Line No. ____ should read: ____ 847 848 Page No. ____ Line No. ____ should read: ____ 849 850 Page No. ____ Line No. ____ should read: ____ 851 852 Page No. ____ Line No. ____ should read: ____ 853 854 Page No. ____ Line No. ____ should read: ____ 855 856 Page No. ____ Line No. ____ should read: ____ 857 858 Page No. ____ Line No. ____ should read: ____ 859 860 Page No. ____ Line No. ____ should read: ____ 861 862 Page No. ____ Line No. ____ should read: ____ 863 864 Page No. ____ Line No. ____ should read: ____ 865 866 Page No. ____ Line No. ____ should read: ____ 867 868 Page No. ____ Line No. ____ should read: ____ 869 870 Page No. ____ Line No. ____ should read: ____ 871 872 Page No. ____ Line No. ____ should read: ____ 873 874 Page No. ____ Line No. ____ should read: ____ 875 876 Page No. ____ Line No. ____ should read: ____ 877 878 Page No. ____ Line No. ____ should read: ____ 879 880 Page No. ____ Line No. ____ should read: ____ 881 882 Page No. ____ Line No. ____ should read: ____ 883 884 Page No. ____ Line No. ____ should read: ____ 885 886 Page No. ____ Line No. ____ should read: ____ 887 888 Page No. ____ Line No. ____ should</p>